

7. (Amended once) The photovoltaic module as defined in claim 1, wherein said reinforcing sheet is made of (one selected from steel, plastic sheet), aluminum composite material[ACM], (glass, fiberglass reinforced panel).

Cancel claim 8, without prejudice.

**REMARKS**

Claims 1 – 9 were rejected under 35 U.S.C. 102(b) as being anticipated by Komori et al. (5,728,230). In order to simplify the present application, claims 2, 4, 5 and 6 are hereby cancelled. It is respectfully requested that the Examiner reconsider her rejection of Claims 1,3,7.8 and 9 in view of the foregoing amendment, and in view of the discussion below.

Applicant's invention in the formation of solar cells and their installation to support surfaces, such as, roofs, billboards, sign posts, and other road side structures, and vehicles, utilizes materials and arrangements thereof which provides a novel and significant expedient in the art of solar energy production which is economical both in material and installation when comparing to the Komori et al disclosures. As a result of the utilization of Applicant's claimed materials and their arrangement, installation of photovoltaic modules at installation sites requires minimum labor effort and time. Such savings are compounded for huge installation sites, such as tops of large buildings and sports arenas, mountain slopes, extensive roadside panels, which may be easily

added on to depending upon expanding needs. Therefore, by virtue of Applicant's invention, solar energy may now compete as a nation-wide, viable energy source available for vast placements which are economical both in installation and maintenance.

Claim I, as amended, specifically requires the photovoltaic cells to be encapsulated directly between sealant, adhesive layers 18 and 20. Contrary to statement in the rejection , lines 10 -12 in paragraph 2 on page 2, Komori et al does not disclose such a directly applied adhesive arrangement. Rather, Komori et al discloses that it is the insulating film 106 that is encapsulated between adhesive layers, namely items 105. Adhesive layers 105 do not encapsulate the photovoltaic cells 101, as recited in the claim.

Claim 1 also specifically requires that the adhesive material be applied to the reinforcing support sheet during final installation at room temperature. This requirement for the formation of applicant's module is completely distinguished and opposed to the formation of the Komori et al module. Contrary to the assertion in the rejection, page 3, lines 2, 3, Komori et al does not utilize room temperature in adapting to apply adhesive material between their insulating film 106 and a reinforcing support sheet during final installation. The section of the Komori et al patent cited in the rejection, col. 1, lines 46 – 51 does not specify "room temperature". The patent description does use the term "thermoplastic resin", and which indicates that heat must be utilized. That this is the case, attention is directed to the further explanation in the patent, col. 2, lines 10,11

wherein the conventional manufacturing methods for solar modules is noted.

Such methods require the "aid of a vacuum laminator and heating them."

Still further in this regard, attention is directed to the patentees' description in col 5, lines 16-21, wherein a relatively high heat temperature range is mentioned for the manufacture of the modules, and , more particularly, to what is mentioned in lines 22-24, namely, that "the handling at room temperature becomes difficult and is unfavorable for use." These steps in their method of production is obviously the opposite of Applicant's claimed method and claimed structural materials which allow for use of room temperature during fabrication.

Applicant's invention comprises a novel combination of protective layers and adhesive layers which is adapted to experience and survive long time installation without shifting in their originally processed positions. This combination is most economical to manufacture and install, as previously stated, particularly, where very, large installation sites are to be used. For this purpose, the invention incorporates adhesive layers of materials selected from the group of acrylic adhesives, silicone adhesives, which permit installation at room temperature and slight hand pressure during final mounting on supporting structures. A reinforcing sheet is provided made from aluminum composite material which comprises characteristics of being lightweight, impervious to wide ranges of temperature fluctuations needed for universal and all-weather outside installation.

From the foregoing discussion, it will be appreciated that the utility and method claims to Applicant's invention are not only not disclosed in the Komori et al patent, but, in at least one important feature, is completely opposed. The encapsulation of specific layers involving solar cells, as claimed, is not the same as disclosed in the reference, as encapsulation does not involve the same or equivalent layers.

Furthermore, Applicant's claims require specific materials, such as acrylic or silicone adhesives, which permit easy fabrication of Applicant's solar modules. Along with this feature, the claims require a simple adhesion arrangement wherein a solar module is applied to a reinforcing sheet, which does not need heat and pressure as required in the reference for the same or equivalent arrangement.

Therefore, it is submitted that the remaining claims in the application, as amended, are clear of the Komori et al disclosures, and consequently are patentable.

Favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,

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Enclosure  
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